



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,702	09/07/2004	Michael J Breslin	21047YP	3343
210 MERCK AND CO., INC P O BOX 2000 RAHWAY, NJ 07065-0907	7590 09/07/2007		EXAMINER HAVLIN, ROBERT H	
			ART UNIT 1626	PAPER NUMBER
			MAIL DATE 09/07/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/506,702	Applicant(s) BRESLIN ET AL.	
	Examiner Robert Havlin	Art Unit 1626	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3, 4, 6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3 and 4 is/are rejected.
- 7) ☐ Claim(s) 6, and 8-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

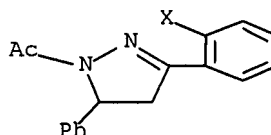
### DETAILED ACTION

Claims 3, 4, 6, 8, 9, and 10 are currently pending. Claims 7, 11-13, 15, 16, 23-25, 35 and 36 were cancelled.

#### Rejection of Claims 3 and 4

In the previous office action claims 3 and 4 were rejected as being anticipated by Chimenti et al. The applicant has amended the claims to avoid anticipation by the teachings of Chimenti et al., therefore the rejection of the claims under 35 USC 102(b) is hereby withdrawn. Since the definitions of the variable group R2 still includes phenyl substituted by halo, CN, NH<sub>2</sub>, etc. the claim is now rejected under 35 USC 103(a) as follows.

1. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chimenti et al. (European Journal of Medicinal Chemistry 1992, 27(6), 633-9) in view of Patani et al. (Chem. Rev., 1996, Vol. 96, No. 8, P. 3147-3176).



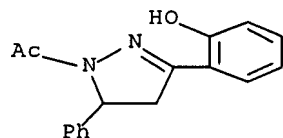
The claims read on molecules of the formula

wherein X can be

CN, NH<sub>2</sub>, halo, etc.

#### Teachings of the prior art

**Chimenti et al.** teaches enzyme inhibitor molecules including the species of

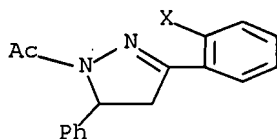


Art Unit: 1626

**Patani et al.** teaches the methodology of bioisosterism in drug design. Specifically, the reference teaches a method of arriving at the optimal drug by substituting known groups with their bioisosteres in biologically active molecules. In particular on page 3150, table and figure 6 the reference shows success in substituting NH<sub>2</sub> for OH on a phenyl ring in a drug molecule.

*Differences between the claims and the prior art*

The difference between the prior art and the claims is the substitution of OH for NH<sub>2</sub> at



position X in the formula

*Obviousness of the differences*

One of ordinary skill in the art would reasonably be expected to be aware of the teachings of both prior art references since they are in the same field of endeavor, namely pharmaceutical development. Since the instant application seeks to invent small molecule inhibitors of enzymes, one of ordinary skill in the art would be motivated specifically to look to the teachings of Chimenti et al. and find the molecule recited above. One of ordinary skill in the art would use the widely known methods of bioisosterism, specifically taught by Patani et al., and immediately look to making substitutions on phenyl rings with bioisosteres to optimize the activity of the drug lead. For example, one of ordinary skill in the art would see the successes such as in table 6 and be motivated to make the same OH to NH<sub>2</sub> substitution and arrive at the claimed invention. Therefore, the claims are obvious over the prior art.

***Claim Objections***

Claims 6, 8, 9, and 10 are objected to as being dependent on a rejected base claim.

***Conclusion***

Claims 3 and 4 are rejected and the remaining pending claims are objected to. Since the applicant's amendments eliminated unpatentable Markush-type claim alternatives to avoid prior art rejections from the first office action, and the amendments necessitated the new basis of rejection, this action is properly **made final**.

**Correspondence**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Havlin whose telephone number is (571) 272-9066. The examiner can normally be reached on Mon. - Fri., 7:30am-5pm EST.

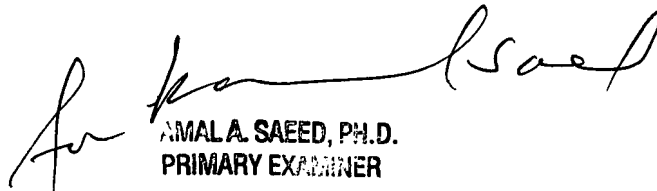
If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor, Joe McKane can be reached at (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert Havlin  
Examiner

RH



AMAL A. SAEED, PH.D.  
PRIMARY EXAMINER